



**Rhode Island Department of Health
Division of Preparedness, Response, Infectious Disease
and Emergency Medical Services**

Data Source

Rhode Island Emergency Medical Service Information System (RIEMSIS) is a state-wide prehospital patient care database utilized by Rhode Island Emergency Medical Services (EMS) providers to collect EMS incident data. Prior to 2017, EMS ambulance services submitting data electronically to RIEMSIS used the National EMS Information System (NEMSIS) version 2.2.1 standard. In 2017, EMS agencies were required to use the upgraded NEMSIS 3.4 standard for submission of data. Due to modifications of the data standard subsequently affecting the data exchange between EMS agencies and the state, there is a deficit in reports submitted to the state from 2017 through Spring 2018.

Inclusion Criteria:

EMS records were exported from the data repository if the following criteria were met:

NEMSIS Version 3:

Unit notified by dispatch date is between Jan. 1, 2016 and Jul. 31, 2019 **and either**

Airway device being confirmed indicates intubation **or**

Procedure description indicates airway intubation **and** procedure is flagged as successful

NEMSIS Version 2:

Unit notified by dispatch date is between Jan. 1, 2016 and Dec. 31, 2017 **and**

Procedure description indicates intubation **and** procedure is flagged as successful.

Exclusion Criteria:

EMS records were not exported from the data repository if the following criteria were met:

Unit notified by dispatch date not in the specified date range **or**

Airway intubation procedure information listed solely in the patient care report narrative **or**

Airway intubation procedure information documented in an agency-specific field not included in the NEMSIS export to the state data repository.

Data Notes:

Airway intubation:

Intubation type was classified to the highest level of information provided in the EMS run report. For records where intubation type was unspecific (e.g. "orotracheal intubation") the patient care report narrative was queried for airway device name/type.

Waveform capnography:

Waveform capnography was considered present in the EMS run report if waveform capnography or digital end-tidal carbon dioxide (ETCO₂) monitoring were listed as successful procedures, or if airway device confirmation method indicated waveform capnography or digital ETCO₂ (NEMSIS v3 records only). The patient care report narrative was also queried to evaluate use of waveform capnography, however, successful interpretation of ETCO₂ cannot be extrapolated from the narrative.

Crew member performing intubation procedure:

Due to changes in the NEMSIS data standard, this information is only provided for years 2018-2019, where crew member performing procedure or crew member confirming airway placement is listed.

Per Rhode Island Department of Health (RIDOH) small number policy, counts less than 5 have been suppressed.



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Table 1. Airway intubation by year, Rhode Island EMS agencies, 1/1/2016 – 7/31/2019

Year	Endotracheal Intubation		SAD-King/ LMA		Other*		Total	
	N	%	N	%	N	%	N	%
Total	591	--	185	--	96	--	872	100
2016	132	22.3	29	15.7	6	6.3	167	19.2
2017	148	25.0	21	11.4	20	20.8	189	21.7
2018	171	28.9	39	21.1	44	45.8	254	29.1
Jan. – Jul. 2019	140	23.7	96	51.9	26	27.1	262	30.1

Table 2. Airway intubation by patient age, Rhode Island EMS agencies, 1/1/2016 – 7/31/2019

Patient Age	Endotracheal Intubation		SAD-King/ LMA		Other*		Total	
	N	%	N	%	N	%	N	%
Total	589	--	184	--	94	--	867	100
0-7 years	8	1.4	<5	--	<5	--	10	1.2
8-17 years	9	1.5	0	0	0	0	9	1.0
18 -25 years	17	2.9	5	2.7	<5	--	25	2.9
≥26 years	555	94.2	178	96.7	90	95.7	823	94.9

Table 3. Airway intubation by EMS provider level, Rhode Island EMS agencies, 1/1/2018-7/31/2019 (N=258)

Provider level, crew member performing intubation	Endotracheal Intubation		SAD-King/ LMA		Other*		Total	
	N	%	N	%	N	%	N	%
Total	163	--	90	--	5	--	258	100
AEMT Cardiac	36	22.1	53	58.9	<5	--	93	36.1
EMT	<5	--	10	11.1	0	0	11	4.3
Paramedic	115	70.6	25	27.8	<5	--	141	54.7
Physician/RN	11	6.8	<5	--	0	0	13	5.0

Table 4. Endotracheal intubations with waveform capnography, 1/1/2016- 7/31/2019 (N=591)

Waveform Capnography Confirmation	Year									
	2016		2017		2018		2019		Total	
	N	%	N	%	N	%	N	%	N	%
Total	29	--	148	--	171	--	140	--	591	100
Waveform EtCO ₂	29	22.0	56	37.8	97	56.7	87	62.1	269	45.5
EtCO ₂ , unspecified device	25	18.9	24	16.2	29	17.0	17	12.1	95	16.1
No EtCO ₂ Confirmation	78	59.1	68	46.0	45	26.3	36	25.7	227	38.4



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Table 5. Airway Intubation by City of Incident, Rhode Island EMS Agencies, 1/1/2016 – 7/31/2019

Incident City	Endotracheal Intubation		SAD-King/ LMA		Other*		Total	
	N	%	N	%	N	%	N	%
Total	580	--	185	--	96	--	861	100
Barrington	<5	--	8	4.3	<5	--	11	1.3
Bristol	18	3.1	11	5.9	<5	--	30	3.5
Burrillville	7	1.2	9	4.9	<5	--	17	2.0
Central Falls	8	1.4	<5	--	0	0	10	1.2
Charlestown	8	1.4	<5	--	<5	--	13	1.5
Chepachet	<5	--	0	0	0	--	<5	--
Coventry	13	2.2	<5	--	8	8.3	25	2.9
Cranston	10	1.7	<5	--	10	1.7	23	2.7
Cumberland	36	6.2	9	4.9	<5	--	48	5.6
East Greenwich	<5	--	0	0	0	0	<5	--
East Providence	29	5.0	6	3.2	16	5.0	51	5.9
Exeter	<5	--	<5	--	0	0	5	0.6
Foster	<5	--	5	2.7	0	0	6	0.7
Glocester	<5	--	0	0	0	0	<5	--
Hopkinton	5	0.9	<5	--	0	0	9	1.1
Jamestown	<5	--	<5	--	0	0	6	0.7
Johnston	14	2.4	<5	--	7	2.4	22	2.6
Lincoln	17	2.9	<5	--	<5	--	21	2.4
Little Compton	<5	--	0	0	<5	--	<5	--
Middletown	10	1.7	<5	--	<5	--	14	1.6
Narragansett	6	1.0	<5	--	<5	--	9	1.1
Newport	23	4.0	7	3.8	<5	--	33	3.8
North Kingstown	14	2.4	9	4.9	<5	--	25	2.9
North Providence	40	6.9	14	7.6	8	6.9	62	7.2
North Smithfield	7	1.2	<5	--	5	5.2	14	1.6
Pawtucket	12	2.1	5	2.7	<5	--	20	3.2
Portsmouth	18	3.1	<5	--	0	0	22	2.6
Providence	32	5.5	8	4.3	0	0	40	4.7
Richmond	<5	--	0	0	0	0	<5	--
Scituate	5	0.9	<5	--	<5	--	8	0.9
Smithfield	6	1.0	13	7.0	<5	--	21	2.4
South Kingstown	51	8.8	6	3.2	<5	--	58	6.7
Tiverton	16	2.8	0	0	0		17	2.0
Warren	6	1.0	<5	--	0	0	9	1.1
Warwick	35	6.0	14	7.6	12	12.5	61	7.1
West Greenwich	5	0.9	<5	0	<5	--	8	0.9
West Warwick	5	0.9	<5	0	5	0.9	11	1.3
Westerly	32	5.5	<5	0	<5	--	38	4.4
Woonsocket	45	7.8	10	5.4	0	0	55	6.4



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Out of State	22	95.7	<5	0	0	0	23	2.7
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Date: 9/4/2019

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NOTE: If these data are used in a publication, please acknowledge the RI Department of Health, Division of Preparedness, Response, Infectious Disease and Emergency Medical Services

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